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Reviews

"Middle Cambrian Merostomata." By Charles D. Walcott. *Cambrian Geology and Paleontology*, II, No. 2.

"Middle Cambrian Holothurians and Medusae." By Charles D. Walcott. *Ibid.*, No. 3.

"Middle Cambrian Annelids." By Charles D. Walcott. *Ibid.*, No. 5.

In these three papers Dr. Walcott has described a portion of one of the most remarkable extinct faunas which any paleontologist has ever brought to light. The fossils occur in the Burgess shale of the Stephen formation, in British Columbia. Their manner of preservation is unusual, the organisms being pressed flat, the soft-bodied Holothurians Medusae, and Annelids being represented only by thin films which fortunately are darker than the shale and are usually shiny. The internal structures are often preserved in glistening, silvery surfaces, even to the fine details. The illustrations of the fossils have been beautifully executed by an ingenious process of photography by reflected light, the photographs being reproduced upon heliotype and half-tone plates.

The Merostomata contained in this remarkable fauna are referred to two new genera, Sidneyia and Amiella, both included in the order Eurypterida, and each made the type of a new family. Each genus is represented by a single species. *Sidneyia inexpectans* is a remarkable type, such as might be expected in an Ordovician rather than in a Middle Cambrian fauna, it is much the commoner of the two and some of the specimens are preserved in such a perfect condition that the structural details of the ventral appendages, even of the branchiae, can be worked out. *Amiella ornata* is represented in the collection by a single broken specimen, and is consequently much less perfectly understood.

The commonest of the Holothurians, *Eldonia ludwigi*, a new genus and species, is a peculiar, free-swimming type, with an umbrella-shaped, medusa-like body, growing to a size of 12 cm. in diameter. The spiral alimentary canal, the oral aperture and tentacles, and the water-vascular system are well shown in many of the specimens. Other Holothurians with more or less elongate, cylindrical bodies, having more the form of living members of the class, are represented by the new genera Laggania, Louisella, and Mackenzia. The Medusae are much less common than the Holothurians; a single new genus and species, *Peytoia nathorsti*, is described, its condition of preservation being identical with that of the Holothurians.

Heretofore the existence of Annelids at the time of deposition of very ancient sediments has been inferred from the presence of certain more or less obscure burrows and trails, but here in the Burgess shale Walcott has been able to recognize eleven genera of these organisms, so perfectly preserved that not only the segmentation of the body but the most delicate appendages can be recognized. The genera are of course all new, and they belong to widely separated families, indicating a remarkable degree of differentiation at this very early period.

Descriptions of the numerous Phyllopod crustaceans which are said to be associated with the organisms discussed in the three papers here noticed, have not yet been published. They will doubtless be made the subject of another paper in this same volume of *Cambrian Geology and Paleontology*. S. W.

Seismic History of the Southern Andes (*Historia sismica de los Andes Meridionales*. POR EL CONDE FERNANDO DE MONTESSUS DE BALLORE, director del Servicio Sismólojico de Chile. Primera Parte. Santiago de Chile, 1911).

As is well known, one of the most unstable regions upon the globe is represented by the great Cordilleran backbone of South America. Yet until quite recently little has been undertaken on scientific lines within that vast region, and its seismic history has been a closed book. When, as a consequence of the object-lesson furnished by the late Valparaiso earthquake, the Republic of Chile established a modern seismological service, it very wisely decided to call to its directorship one of the foremost of living authorities upon earthquake phenomena. Already familiar with the Spanish language from years of residence in Central America, and an experienced compiler of seismic maps and catalogues, it was inevitable that the Count de Montessus would not long delay in exploiting the rich mine of seismic facts so long buried in local historical documents. This agreeable task the new director has undertaken, and the wealth of the material has proved even greater than was supposed, so that it will fill several volumes. The first of these has just appeared and is entitled "Seismic History of the Southern Andes" (*Historia sismica de los Andes Meridionales*. Por el Conde Fernando de Montessus de Ballore, director del Servicio Sismólojico de Chile. Primera Parte. Santiago de Chile, 1911).